DRAFT

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February __, 2018

Mark Manfredi
Red Hill Regional Program Director
Naval Facilities Hawaii
400 Marshall Road
Joint Base Pearl Harbor Hickam, Hawaii 96860

Re: Comments on Ongoing Work to Satisfy the Red Hill Bulk Fuel Storage Facility ("Facility") Administrative Order on Consent ("AOC") Statement of Work requirements 7.1.3 (Groundwater Flow Model Report) and 7.2.3 (Contaminant Fate and Transport Report).

Dear Mr. Manfredi:

The U.S. Environmental Protection Agency ("EPA") and Hawaii Department of Health ("DOH"), collectively the "Regulatory Agencies", appreciate the significant efforts undertaken by the U.S. Department of the Navy ("Navy") and its contractors to satisfy the AOC Statement of Work requirements referenced above.

The Navy has hired experts in groundwater modeling, obtained assistance from the U.S. Geological Survey (USGS) via an interagency agreement, and has convened numerous meetings with the Regulatory Agencies and external subject matter experts (SME), such as the Department of Land and Natural Resources and Honolulu Board of Water Supply.

The primary goal of the modeling effort in progress by the Navy and its consultants should be to develop tools that help evaluate and predict the risk posed to groundwater and drinking water sources from past and potential future releases from the Facility. As with any groundwater modeling effort, the utility of the developed models to support decision making relies on both the quality and resolution of data used to develop the models and the rigor and performance of the calibration.

Recently, the Regulatory Agencies hired additional technical specialists to advise us on some of the more complex aspects of this work. These additional specialists supplement our current team of consultants, a University of Hawaii expert, and other in-house experts. Based on the

observations and input from these specialists over the last few months, the Regulatory Agencies have the following overarching concerns:

1. The Navy and its consultants appear to be prematurely concluding key aspects of the model that strongly influence groundwater flow and contaminant fate and transport, well before the development and calibration of the interim model has been completed and reviewed.
2. The Navy and its consultants' current approach to simplifying the hydro-stratigraphy within the interim model may not render a conservative evaluation of potential groundwater flow and contaminant migration.
3. Characteristics of the underlying Conceptual Site Model (CSM) presented by the Navy and its consultants are not sufficiently supported by data collected at the site.
4. The Navy and its consultants have not presented a strategy or framework for evaluating the uncertainty associated with results obtained from the model.
5. The Navy and its consultants' initial analysis of Non-Aqueous Phase Liquid (NAPL) transport, fate and transformation in the unsaturated zone is not likely conservative and appears to be inconsistent with data collected at the site.

Commented [MT1]: Could be reworded to clarify if this means that are finishing key aspects of the model development, or reaching key conclusions

Given these concerns, the Navy and its consultants should proceed carefully to develop a model that accurately reflects the current state of environmental data present and considers the comments and observations of our technical experts. The issues and concerns raised by our technical experts are included in attachments to this letter.

Commented [MT2]: Im still not entirely clear if "model" refers only to the groundwater model (which will also simulate dissolved fate and transport), or also to the LNAPL model (which will simulate product fate and transport).

The groundwater flow model and contaminant fate and transport models should be reliable tools that ultimately inform and support key decisions at the Facility and in the surrounding area. The quality of these decisions, such as tank upgrade selection, sentinel well placement, and contingency planning, will be significantly improved by a modeling framework that is scientifically rigorous and able to withstand legitimate scrutiny.

Commented [MT3]: I added an "s" in case the LNAPL and dissolved phase F&T models are considered distinct from one another.

Please feel free to contact us if you would like to discuss this matter further.

Attachments:

AQUI-VER comments
S.S. Papadopulos & Assoc., Inc. (SSP&A) comments
Dr. Don Thomas, University of Hawaii comments
Memo to